

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the continuation in part application of:

Boris MASLOV et al.

Serial No.: to be assigned

Filing Date: Concurrently Herewith

For: IN-WHEEL ELECTRIC MOTORS

Examiner: E. Colon-Santana

Group Art Unit: 2837

**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR 1.97**

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Sir:

Pursuant to 37 CFR §§ 1.97 and 1.98, Applicants submit for consideration in the above-identified application the documents listed on the attached Form PTO-1449. Copies of the documents were previously submitted in an Information Disclosure Statement and/or Office Action, directed to the related application Serial Number 10/359,305, filed February 6, 2003, and, accordingly, copies are not included herewith. This protocol conforms with 37 CFR §1.98(d) and MPEP 609(A)(2). The Examiner is requested to make these documents of record in the application.

This Information Disclosure Statement is submitted with the filing of a new U.S. patent application. No fee is required.

Applicants would appreciate the Examiner initialing and returning the copy of the Form PTO-1449 indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 CFR 1.97 is not to be construed as a representation that: (I) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

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Respectfully submitted,

Dated: December 17, 2003

By: 

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Substitute for form 1449AU.S. Patent and Trademark Office  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>			<b>Complete if Known</b>		
			Application Number	10/359,305	
			Filing Date	February 6, 2003	
			First Named Inventor	Boris A. MASLOV	
			Art Unit	N/A	
			Examiner Name	Not Yet Assigned	
Sheet	1	of	5	Attorney Docket Number	544092000124

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		6,492,756-B1	12-10-2002	Maslov et al.	
		6,420,795-B1	07-16-2002	Mikhail et al.	
		6,417,650-B1	07-09-2002	Stefanovic et al.	
		6,394,209-B1	05-28-2002	Goehring et al.	
		6,362,586-B1	03-26-2002	Naidu	
		6,215,198-B1	04-10-2001	Inada et al.	
		6,213,571-B1	04-10-2001	Yamada et al.	
		6,209,672-B1	04-03-2001	Severinsky	
		6,003,626	12-21-1999	Ibaraki et al.	
		6,002,234	12-14-1999	Ohm et al.	
		5,997,107	12-07-1999	Koga et al.	
		5,939,807	08-17-1999	Patyk et al.	
		5,929,612	07-27-1999	Eisenhaure et al.	
		5,910,716	06-08-1999	Olsen et al.	
		5,847,530	12-08-1998	Hill	
		5,708,337	01-13-1998	Breit et al.	
		5,677,605	10-14-1997	Cambier et al.	
		5,652,485	07-29-1997	Spiegel et al.	
		5,549,371	08-27-1996	Konaga et al.	
		5,549,172	08-27-1996	Mutoh et al.	
		5,438,228	08-01-1995	Couture et al.	
		5,418,437	05-23-1995	Couture et al.	
		5,319,844	06-14-1994	Huang et al.	
		5,311,092	05-10-1994	Fisher	
		5,028,804	07-02-1991	Lauw	
		4,806,814	02-21-1989	Nold	
		4,703,189	10-27-1987	DeValentin et al.	
		4,472,649	09-18-1984	Namba et al.	
		4,438,341	03-20-1984	Winterbotham	
		4,316,699	02-23-1982	Schott et al.	
		5,034,675	7/1991	Nerowski et al.	
		5,258,697	11/1993	Ford et al.	
		5,365,137	11/1994	Richardson et al.	
		6,400,059-B1	06-04-2002	Hsu	
		6,384,496-B1	05-07-2002	Pyntikov et al.	
		6,380,648-B1	04-30-2002	Hsu	
		6,356,005-B1	03-12-2002	Hsu	
		6,348,752-B1	02-19-2002	Erdman et al.	
		6,278,216-B1	08-21-2001	Li	
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FOREIGN PATENT DOCUMENTS						
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
		DE 19909277-A1	10/21/1999			
		EP 0 006 669 A	1/1980			
		WO 90/11641	10/1990			
		DE 195 03 492 A1	08/1996			
		DE 197 04 576 A1	08/1998			
		EP 0 866 547 A1	09/1998			

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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See attached Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	D	IRVING M. GOTTLIEB, Electric Motors and Control Techniques, 2nd Edition, 1994, TAB Books (Imprint of McGraw Hill), New York, pp. 147-151, 207-210 and 235-239	
	DA	JACEK F. GIERAS and MITCHELL WING, Permanent Magnet Motor Technology, 2nd Edition, 2002, Marcel Dekker, Inc., New York, pp. 230-234, 238-264, 275-276, 283-285, 353-359 and 369-373	
	DB	THOMAS M. JAHNS, "Improved Reliability in Solid-State AC Drives by Means of Multiple Independent Phase-Drive Units", IEEE Transactions on Industry Applications, Vol. IA-16, No. 3, May/June 1980, pp. 321-331	
	DC	O. WASYNCHUK, S.D. SUDHOFF, K.A. CORZINE, JERRY L. TICHENOR and P.C. KRAUSE, "A Maximum Torque per Ampere Control Strategy for Induction Motor Drives," IEEE Transactions on Energy Conversion, Vol. 13, No. 2, June 1998, pp. 163-169	
	DD	V. ARCIDIACONO, S. CORSI, G. TAGLIABUE, G. OTTAVIANI, S. TOGNO, G. BAROFFIO, C. RAFFAELLI and E. ROSA, "The ENEL's Experience on the Evolution of Excitation Control Systems through Microprocessor Technology," IEEE Transactions on Energy Conversion, Vol. 13, No. 3, September 1998, pp. 292-299	
	DE	M.A. RAHMAN and M.A. HOQUE, "On-line Adaptive Artificial Neural Network Based Vector Control of Permanent Magnet Synchronous Motors," IEEE Transactions on Energy Conversion, Vol. 13, No. 4, December 1998, pp. 311-318	

Examiner Signature		Date Considered	
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Sheet	4	of	5	Attorney Docket Number	544092000124

	DF	T.M. Empson, "Energy Saving Systems for Induction Motors," 1998, at <a href="http://home.clear.net.nz/pages/lmphotronics/es090698.pdf">home.clear.net.nz/pages/lmphotronics/es090698.pdf</a>	
	DG	B.J. CHALMERS and W. WU, "An Axial-Flux Permanent-Magnet Generator for a Gearless Wind Energy System," IEEE Transactions on Energy Conversion, Vol. 14, No. 2, June 1999, pp. 251-257	
	DH	CHIH-YI HUANG, TIEN-CHI CHEN and CHING-LIEN HUANG, "A Microcomputer-based Induction Motor Drive System Using Current and Torque Control," IEEE Transactions on Energy Conversion, Vol. 14, No. 4, December 1999, pp. 874-880	
	DI	R. BLISSENBACH, G. HENNEBERGER, U. SCHAFER and W. HACKMANN, "Development of a Transverse Flux Traction Motor in a Direct Drive System," ICEM2000 Proceedings, Vol. III, August 30, 2000, pp. 1457-1460	
	DJ	HERNAN DE BATTISTA, RICARDO J. MANTZ AND CARLOS F. CHRISTIANSEN, "Dynamical Sliding Mode Power Control of Wind Driven Induction Generators," IEEE Transactions on Energy Conversion, Vol. 15, No. 4, December 2000, pp. 451-457	
	DK	R. BLISSENBACH and G. HENNEBERGER, "New Design of a Soft Magnetic Composite Transverse Flux Machine with Special Attention on the Loss Mechanisms," presented at Electromotion '01 at Bologna, Italy on June 20, 2001	
	DL	SURESH H. JANGAMSHETTI and V. GURUPRASADA RAU, "Optimum Siting of Wind Turbine Generators," IEEE Transactions on Energy Conversion, Vol. 16, No. 1, March 2001, pp. 8-13	
	DM	EDUARD MULJADI, HERBERT L. HESS and KIM THOMAS, "Zero Sequence Method for Energy Recovery from a Variable-Speed Wind Turbine Generator," IEEE Transactions on Energy Conversion, Vol. 16, No. 1, March 2001, pp. 99-103	
	DN	JAWAD FAIZ and MOHAMMAD B.B. SHARIFIAN, "Different Techniques for Real Time Estimation of an Induction Motor Rotor Resistance in Sensorless Direct Torque Control for Electric Vehicle," IEEE Transactions on Energy Conversion, Vol. 16, No. 1, March 2001, pp. 104-109	
	DO	Z. CHEN and E. SPOONER, "Grid Power Quality with Variable Speed Wind Turbines," IEEE Transactions on Energy Conversion, Vol. 16, No. 2, June 2001, pp. 148-154	
	DP	M. NASIR UDDIN, TAWFIK S. RADWIN and M. AZIZUR RAHMAN, "Performance of Interior Permanent Magnet Motor Drive Over Wide Speed Range," IEEE Transactions on Energy Conversion, Vol. 17, No. 1, March 2002, pp. 79-84	
	DQ	TIEN-CHI CHEN and TSONG-TERNG SHEU, "Model Reference Neural Network Controller for Induction Motor Speed Control," IEEE Transactions on Energy Conversion, Vol. 17, No. 2, June 2002, pp. 157-163	
	DR	T.F. CHAN, LIE-TONG YAN and SHAO-YUAN FANG, "In-Wheel Permanent-Magnet Brushless dc Motor Drive for an Electric Bicycle," IEEE Transactions on Energy Conversion, Vol. 17, No. 2, June 2002, pp. 229-233	
	DS	K.L. SHI, T.F. CHAN, Y.K. WONG and S.L. HO, "A Rule-Based Acceleration Control Scheme for an Induction Motor," IEEE Transactions on Energy Conversion, Vol. 17, No. 2, June 2002, pp. 254-259	
	DT	DAVID A. TORREY and JAMES M. KOKERNAK, "Power Steering: Brushless DC or Switched Reluctance?" Power Electronics Technology, Aug. 2002, pp. 24-33	
	DU	VACON PLC, "Vacon NXS: Advanced Motor Control," undated, at	

Examiner Signature		Date Considered	
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va-52980

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Sheet	5	of	5	Attorney Docket Number	544092000124

		<a href="http://www.vacon.com/products/nxs.html">www.vacon.com/products/nxs.html</a>	
	DV	V S RAMSDEN, B C MECROW and H C LOVATT, "Design of an In-Wheel Motor for a Solar-Powered Electric Vehicle," undated, at <a href="http://www.tip.csiro.au/Machines/papers/iwscem/">www.tip.csiro.au/Machines/papers/iwscem/</a>	
		UQM Technologies, Inc. press release dated September 17, 2002 and available on the Web at <a href="http://www.uqm.com/press/news/03-19.html">www.uqm.com/press/news/03-19.html</a>	
		Part of the UQM Technologies, Inc. 2002 Annual Report dated June 19, 2002 and available on the Web at <a href="http://www.uqm.com/investor/annual/02Technology.pdf">www.uqm.com/investor/annual/02Technology.pdf</a>	
		Jansson, "Advances in soft magnetic composites based on iron powder", Soft Magnetic Materials Conference, Barcelona, Spain, April 1998	
		Jack et al., "Permanent magnet machines with powdered iron cores and pre-pressed windings", IEEE IAS Conference, Phoenix, USA, Oct. 1999	
		White Paper: Induction Motors - constant frequency; constant voltage variable frequency/variable voltage, Reliance Electric, <a href="http://www.reliance.com/prodserv/motgen/b7097_2.htm">http://www.reliance.com/prodserv/motgen/b7097_2.htm</a> , 2001	
		Jansson, et al., "Magnetic assessment of SMC materials", 21st Annual Conference on Properties and Applications of Magnetic Materials, Chicago, USA, May 2002	

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